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SAN DIEGO REGIONAL  
WATER QUALITY  
CONTROL BOARD

2005 JUN 15 P 4: 48

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June 15, 2005

**Attn: Agenda for Sediment Cleanup**

**Re: Comments on Tentative CAO R9-2005-0126 dated April 29, 2005**

Dear Mr. Robertus:

We provide the following comments for consideration by the Regional Water Quality Control Board (RWQCB) members and staff. Please note that the following technical comments on the Tentative CAO are summary in nature, due to the RWQCB only releasing summary-level findings without supporting data and calculations, references or citations, or Staff Report. These comments were prepared by ENV America, consultant to SDG&E.

**Comments on "PERSONS RESPONSIBLE," Finding 8 "SDG&E"**

We disagree with the RWQCB finding that there are data or other technical information that support naming SDG&E as a discharger in the Tentative CAO. In Finding 8 the RWQCB makes statements about SDG&E's former operations at Silver Gate power plant, and concludes that these statements are the basis for naming SDG&E as a discharger. (While the RWQCB does not cite a reference for the statements made about SDG&E's operations, it appears that the RWQCB has taken these observations from SDG&E's Investigation Order (IO) reports prepared by ENV America Incorporated (2004a<sup>1</sup> and 2004b<sup>2</sup>)).

The available data presents a compelling argument that SDG&E was not and is not a discharger to marine sediments. We draw your attention to the primary conclusion from

<sup>1</sup> ENV America, 2004a, Site Assessment Report, Landside Tidelands Lease Area, Silver Gate Power Plant, San Diego, California. July 14. Prepared for SDG&E. Provided to RWQCB in July 2004.

<sup>2</sup> ENV America, 2004b, Technical Report for RWQCB Investigation Order No. R9-2004-0026, Silver Gate Power Plant, San Diego, California. July 14. Prepared for SDG&E. Provided to RWQCB in July 2004.

the IO report, and SDG&E's pending site assessment work. The primary conclusion and recommendation from SDG&E's IO report was:

*"The Exponent (2003) sediment sampling stations in the SDG&E wharf leasehold and the north portion of SWM's wharf leasehold were spaced over 100 feet apart [very sparse], and there were only three sediment sampling stations in SDG&E's leasehold. The [available] data indicate that SDG&E discharges were not a cause of sediment contamination. Additional data are recommended to conclude with certainty that SDG&E discharges were not a cause of sediment contamination."*  
(ENV America 2004b, page 34)

Recognizing that there is uncertainty, SDG&E is planning to conduct its own sampling of bay sediments. On May 16, 2005, the RWQCB was provided with SDG&E's workplan to independently sample and analyze sediments to determine if SDG&E operations contributed to sediment contamination (ENV America 2005<sup>3</sup>). SDG&E plans to conduct sampling in July of 2005, and to publish the results by November 2005.

Given that there is little evidence that SDG&E was or is a discharger, the RWQCB should refrain from considering SDG&E to be a discharger until SDG&E has completed its own sediment sampling, analysis and data evaluation, and there are sufficient data to conclude with certainty whether SDG&E was or was not a contributor to contamination in bay sediments.

The following explains why specific statements in Finding 8 of the Tentative CAO are erroneous or misleading.

The RWQCB erroneously concludes that operational history and site assessment data from former wastewater ponds indicates that the ponds discharged or threaten to discharge PCBs or other contaminants to San Diego Bay. The RWQCB correctly states that SDG&E operations included discharging of wastes to holding ponds, but the RWQCB errs when it states that the detection of PCBs in one of two former ponds is evidence that SDG&E was a source of PCBs detected in the bay sediments. Substantial data and information refute the RWQCB's linking of PCBs in bay sediments to SDG&E operations, and the data strongly indicate that PCBs and PCTs detected in sediment originated from releases in the vicinity of the shipyard marine railways and the landward end of Pier 1.

- The concentration trends in the sediment data strongly indicate that the primary source of PCBs and PCTs in the northern end of Exponent Sediment Investigation study area was in the vicinity of the shipyard marine railways at the landward end of Pier 1 (ENV America 2004b, 2005) (in particular, see Figure 5 in ENV America [2005], which presents and illustrates a more complete record of PCB data than was presented in Exponent's Sediment Investigation).

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<sup>3</sup> ENV America, 2005, Sediment Sampling Workplan, Silver Gate Power Plant, San Diego, California. March 29. Prepared for SDG&E. Provided to RWQCB on May 16, 2005.

- PCBs were detected in only two samples from one of SDG&E's former wastewater ponds, at a maximum concentration of 2.8 ppm Aroclor 1260 (ENV America, 2004a), which is a concentration far lower than was detected in bay sediments. The maximum concentration of total PCBs detected in bay sediments in the north end of the Exponent Sediment Investigation study area was 34 ppm (location SW08, which also had the highest concentration of PCTs) (ENV America 2005). If the former wastewater ponds were a source of PCBs detected in bay sediments, then one would expect to see the highest PCB concentrations in the former wastewater ponds. The concentration trends do not indicate that the former wastewater ponds were a source of PCBs – on the contrary, the concentration trends indicate that the shipyard was the primary source of PCBs. The concentration trends indicating that the shipyard is the primary source of PCBs is consistent with literature about PCBs and ships.
  - PCBs are a known problem in the shipbreaking industry, and in older vessels PCBs are encountered in a variety of materials, including “...rubber products such as hoses, plastic foam insulation, cables, silver paint, habitability paint, felt under septum plates, plates on top of the hull bottom, and primary paint on hull steel.” (OSHA Fact Sheet, “*Shipbreaking*,” 2001)
  - “PCBs are found throughout older vessels and it is likely your ship scrapping facility will be faced with managing large quantities of PCBs.” (“*Guide for Ship Scrappers*,” USEPA 315-B0-00-001)
- The affected soil beneath the former wastewater ponds does not threaten to discharge to the bay. ENV America (2004a) demonstrated that (1) the affected soil of the former wastewater ponds is buried beneath several feet of clean soil and pavement, which means the affected soil is not a current or potential future source of contaminated surface runoff, if left undisturbed; and (2) the groundwater samples collected from beneath the former wastewater ponds did not have detectable PCBs (PCBs generally do not migrate in groundwater). ENV America (2004a) demonstrated that the groundwater concentrations beneath the former wastewater ponds are below applicable regulatory criteria and there is no threat to the bay via the groundwater migration pathway.
- The plant records indicate that former wastewater ponds were used for treatment or disposal of the power plant bilge trench water; and given that no PCBs were detected in the power plant's bilge trenches, it is unlikely that the source of PCBs detected in the former wastewater pond was the power plant operations. The power plant's bilge trenches were the receiver or collector of many of the low volume liquid waste discharges from the power house. If PCBs had been released in the power house, then it is likely that PCBs would have been detected in the bilge trenches.

- A number of records (photographs, an engineering drawing and lease records) document that the shipyard subleased the land parcel containing the wastewater ponds, and in the late 1960s or early 1970s the shipyard operations appear to have encompassed the open wastewater pond. Records also indicate that the shipyard constructed decking above the wastewater pond to enable shipbuilding or ship repair activities to be performed over the pond area.
- PCBs were not used in appreciable quantities in the power plant and substation. The only known uses of PCBs in the powerhouse were in small closed systems such as in capacitors and fluorescent light ballasts (similar to the use of PCBs in many older commercial or residential buildings). The transformers in SDG&E's Silver Gate substations and switchyard did not contain PCB dielectric fluids, and contained only trace PCBs.

SDG&E is continuing to research records on PCB uses and occurrences at Silver Gate power plant, and will provide additional supporting documentation to the RWQCB in a future transmittal.

There is no conclusive evidence linking SDG&E discharges to contamination found in marine sediments. The IO report (ENV America 2004b) addressed the RWQCB's earlier allegations<sup>4</sup> that SDG&E's operations contributed to elevated concentrations of cadmium, chromium, mercury, nickel and PCTs in marine sediment. We note that the RWQCB through issuing the new Tentative CAO, without maintaining earlier allegations, concurs with ENV America's (2004b) conclusion that data indicate that SDG&E did not contribute to elevated concentrations of cadmium, mercury, nickel and PCTs in marine sediment.

The following comments address the RWQCB's new allegations in the Tentative CAO that SDG&E's non-contact cooling water discharges contributed pollutants to marine sediments, including chromium, iron, copper, total suspended solids (TSS) and petroleum hydrocarbon (on the basis of waste discharge monitoring records).

- The patterns of contaminant distribution in sediment do not indicate that the cooling water discharges were a source of contaminants in sediment – on the contrary, the concentration trends indicate that the shipyard and City storm water discharges were the source of contaminants in sediment. (see Exponent Sediment Investigation; and ENV America, 2004b and 2005.)
- SDG&E's historical chromium exceedances in cooling water were minor, and the form of chromium found in bay sediments at the shipyard is unlikely to have come from SDG&E's discharges, but is likely to have come from shipyard discharges. ENV America (2004b) documented that the only known use of

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<sup>4</sup> Finding 10 of Investigation Order No. R0-2004-0026.

chromium at Silver Gate power plant was sodium dichromate, which was used as a corrosion inhibitor in the service water system. Exponent's Sediment Investigation and Technical Memorandum of April 6, 2004, documented that in sediments more than 80 percent of the relative mass of chromium was present as iron-chromium oxide, and 60 percent of the relative mass of chromium was present as chalcopyrite, copper-zinc oxide, and slag. The major source of the primary chromium forms found in sediment was most likely shipyard wastes, such as sand blasting grit (blasting grit is commonly ore slag, a source of the mineral chalcopyrite and other forms of chromium), alloy steels and other metal debris (most alloy steels contain chromium, and stainless steel contains over 10 percent chromium), and paint debris (chromium is used in many pigments). Major waste streams in current and historical shipyard operations are sand blast grit, steel debris and paint debris.

- SDG&E's historical iron and TSS exceedances in cooling water were minor, and are not relevant, because iron and TSS are not rare constituents, nor are they identified as chemicals of concern in the shipyard cleanup.

#### **Comment on "FACTUAL BACKGROUND"**

Finding 11 in the Tentative CAO in its entirety states:

**"SEDIMENT QUALITY INVESTIGATION.** Unless otherwise explicitly stated, the RWQCB's finding and conclusions in this Cleanup and Abatement Order are based on the data and other technical information contained in the report prepared by NASSCO's and Southwest Marine's consultant, Exponent entitled *NASSCO and Southwest Marine Detailed Sediment Investigation, September 2003.*"

Finding 11 is incorrect. We find that the RWQCB, in drafting the Tentative CAO, presents data and much other technical information that was not contained in the Exponent Sediment Investigation. For instance, the Tentative CAO presents a "Summary of Economic Feasibility Evaluation" (Finding 33) that appears to be based on engineering calculations by NOAA, presented in the following documents.

Memorandum from NOAA to RWQCB, dated February 23, 2005. Re: Calculation of Dredging Volumes at the NASSCO and Southwest Marine Shipyards for Alternative Remedial Scenarios.

Memorandum from NOAA to RWQCB, dated March 14, 2005. Addendum to Memorandum dated February 23, 2005, Re: Calculation of Dredging Volumes at the NASSCO and Southwest Marine Shipyards for Alternative Remedial Scenarios.

Memorandum from NOAA to RWQCB, dated April 12, 2005. Re: Calculation of post-dredging area weighted averages at the NASSCO and Southwest Marine Shipyards for Alternative Remedial Scenarios.

Memorandum from NOAA to RWQCB, dated May 12, 2005. Re: Calculations of Dredging Volumes at the NASSCO and Southwest Marine Shipyards for Five Times Baseline Remedial Scenario Using TBT, PCB and Benzo(a)pyrene (BAP).

We observed that the Sediment Investigation report available to us (via posting on the RWQCB's website) is dated October 2003, and is not dated September 2003 as cited in the Tentative CAO. We request that the RWQCB provide us a copy of the September 2003 report, if the citation was correct.

**Comment on Finding 15, "BASELINE SEDIMENT QUALITY CONDITIONS," and Finding 31, "BACKGROUND SEDIMENT QUALITY"**

We note that the RWQCB has published background sediment chemistry levels that are different than those published in Exponent's Sediment Investigation. Please explain why and how the RWQCB calculated new background concentrations, particularly in light of the extensive plans, correspondence and discussion that preceded Exponent's development of background concentrations.

**Comments on evaluation of baseline risk in**

**Aquatic life beneficial use impairment (Findings 12 to 21)**

**Aquatic-dependent wildlife beneficial use impairment (Findings 22 to 25)**

**Human health beneficial use impairment (Findings 26 to 29)**

We note that the RWQCB and Exponent in evaluating baseline risk used substantially different assumptions and input values, and arrived at substantially different conclusions about impairment of beneficial uses. We found it difficult to review or understand the RWQCB's risk assessments, because the RWQCB did not provide explanations in the Tentative CAO to explain why and how the RWQCB deviated from project guidance, project plans, and Exponent's Sediment Investigation results. Please explain why and how the RWQCB chose to use different assumptions and input values for evaluating risk.

We noted a large number of apparent inadequacies in the risk evaluations, and to minimize the length of these comments we directed our comments to only the human health risk assessment (Findings 26-29). These same comments or similar comments also apply to the risk assessments the RWQCB performed for aquatic-dependent wildlife (Findings 22-25).

The RWQCB incorrectly used a fractional intake (FI) of 1 for the screening (Tier I) and baseline (Tier II) human health risk assessments. Given that the shipyard area is now and will continue to be an operating shipyard with strict, enforced prohibitions on public fishing access, it is inappropriate to use a fractional intake of 1 to conduct risk assessments using tissue concentrations from fish and shellfish with high site fidelity. The approach used to perform baseline risk assessments in California when there is no foreseeable change in site use is to conduct risk assessments using reasonable assumptions and inputs based on the current site use or planned future site use. The RWQCB should recalculate the baseline human health risk assessment using an appropriate exposure scenario and inputs based on the current and planned site use.

The RWQCB presents generalized conclusions that do not adequately portray baseline risks, and possibly incorrectly portray baseline risks. For instance, the RWQCB in Finding 29 states that they quantified (calculated) the baseline carcinogenic risks and hazard quotients for four assessment areas and one reference (background) area, but the RWQCB presented only one assumption (the FI) of the dozen or more the assumptions necessary to establish a baseline risk assessment and the RWQCB did not present the quantified results (the numerical results), except to say that the undisclosed numbers were above or below a particular risk index number. For instance, in just one example, the RWQCB in Finding 29 indicates that the concentrations from whole body Sand Bass caught inside the SWM leasehold had an undisclosed carcinogenic risk number above  $1 \times 10^{-6}$ , the same fish species from the background area had an undisclosed carcinogenic risk number above  $1 \times 10^{-6}$ , PCBs presented 96 percent of the cumulative cancer risk, and the RWQCB concluded that the area inside the SWM leasehold poses a theoretical increased cancer risk. Because the RWQCB did not presented the numerical results from the risk assessment, the RWQCB has not demonstrated whether there is a significant difference between background risk and site risk, the RWQCB has not revealed the amount of increase in the theoretical cancer risk, and the RWQCB has presented insufficient data to contribute to and initiate a meaningful and detailed discussion about baseline risk. We request that the RWQCB publish the full results of the risk assessment.

**Comment on Finding 33, 'ECONOMIC FEASIBILITY CONSIDERATIONS'**

The Tentative CAO does not present quantified risk levels associated with the cleanup levels of 5x, 10x, 15x and 20x background for TBT, BaP and PCBs. In the table in Finding 33, the RWQCB indicates that they determined what the "long-term effects" may be for cleanup to 5x, 10x, 15x and 20x background for TBT, BaP and PCBs. The "long-term effects" are ranked on a scale of 10 (+5 to -5), and the assigned scores appear to be qualitative scores. On a project of this magnitude having an abundance of scientific data, the RWQCB should evaluate effects on beneficial uses using scientific relationships between chemistry and risk (i.e. quantified risk assessments).

**Comment on Finding 34, "ALTERNATIVE SEDIMENT CLEANUP LEVELS"**

The cleanup levels proposed by the RWQCB are not consistent with Section II.a.9 of SWRCB Resolution No. 92-49, (*Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304*), which states that the RWQCB shall... "Prescribe cleanup levels which are consistent with appropriate levels set by the RWQCB for analogous discharges that involve similar wastes, site characteristics, and water quality considerations..." The RWQCB is currently proposing cleanup levels that are based on baseline risk assessment exposure scenarios and assumptions that are inconsistent with the current practice in California, and the RWQCB is proposing cleanup levels that are far lower than previously set for analogous projects at Campbell Shipyard, Shelter Island Boat Yard, America's Cup Harbor, Paco Terminals and Teledyne Ryan. The RWQCB should revise its risk assessment models to use appropriate site-specific exposure scenarios and input values consistent with the standard practices used in California, and the RWQCB should prescribe cleanup levels consistent with the prior cleanups in San Diego Bay.

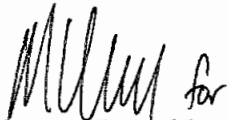
The cleanup levels that the RWQCB is proposing for metals are without precedence, and are probably not practical to achieve in the field. We note that the RWQCB is proposing cleanup levels that are approximately equal to background (see table below), and appear to have no foundation in risk assessment. The proposed cleanup levels for metals appear to have been chosen by selecting the predicted residual concentrations that would exist after cleanup of TBT, BaP and PCB. We recommend the RWQCB consider using risk-based cleanup levels for metals, and establish cleanup levels only for those metals that significantly contribute to risk.

Chemical	Units	RWQCB proposed CU level	RWQCB CU level as multiples of background	RWQCB background 95% UPL	Exponent background 95% UPL
Arsenic	mg/kg	10	1.33	7.5	9
Cadmium	mg/kg	1	3.03	0.33	0.29
Chromium	mg/kg	81	1.42	57	57
Copper	mg/kg	200	1.65	121	120
Lead	mg/kg	90	1.70	53	48
Mercury	mg/kg	0.7	1.23	0.57	0.56
Nickel	mg/kg	20	1.33	15	17
Silver	mg/kg	1.5	1.36	1.1	1
Zinc	mg/kg	300	1.56	192	210
Tributyltin	ug/kg	110	5	22	5.1
Benzo(a)pyrene	ug/kg	1010	5	202	—
PCB, total congeners	ug/kg	420	5	84	36

Thank you for the opportunity to submit these comments. We look forward to your response.

Sincerely,

**ENV America Incorporated**



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cc: Tom Alo, RWQCB  
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